# CONTROL OF COTTON PESTS WITH SOME NEW INSECTICIDES AFTER TYPHOON

by

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There are two important obstacles in cultivating cotton in Taiwan, namely, typhoons and insect pests. Though typhoons are a grave menace to cotton crops, they do not cause serious damage to cotton every year. During 1956 the typhoon Diana which occured on Sept. 15 was very strong. A heavy rain fell incessantly all day long. Where it entirely destroyed the squares and bolls at an early stage, the loss was estimated from 90 to 100 per cent. If the leaves, squares and bolls started growing again, the leafhopper (*Chlorita biguttula* Ishida) and spiny bollworm *Earias fabia* Stoll seemed more abundant than before. Meanwhile the control of these cotton pests was of great importance, since it would reduce further damage to the cotton. The results were obtained from these tests helped us to render better extension service to local farmers. In the experiments gusathion and diazinon were used and these were compared with endrin. The results are herein this paper.

## MATERIALS AND METHODS

The field experiments were conducted at Tai-dou-kung, Chia-yi county in Taiwan in 1956. The field divided into three blocks of 18 plots each. The plots measured 35 sq. m. (5×7 m) including 70 plants, each plot had 5 rows making 14 plants per row. The plants were spaced 1 meter by 0.5 meter apart. The variety of cotton which was sowed on July 6 was Kuan-tung No. 119. Twelve different treatments and six checks were assigned at random to each block. Each insecticide was made up into a 0.02% and 0.04% dilution of active ingredient. The spray schedule was divided into five or seven applications. The five sprays were made at 14 day intervals. They were applied on Sept. 20, Oct. 3, 17 and Nov. 1 and 15. The seven sprays were applied at 10 day intervals, they were applied on Sept. 20, 30, Oct. 10, 20, 30, and Nov. 9 and 19. Sprays were made from emulsifiable concentrate and applied with a small type of automatic sprayer, each spray was applied at same of 1200 liters of insecticidal solution per hectare, respectively. The number of bolls on each plant was counted by examing 10 plants randomly selected from a central row of each plot and the percentage of infested bolls was also determined at same in all treatments.

## RESULTS

All treated plots showed a significant greater yield than the check. There was also a significant difference between the number of sprays and the various concentrations

of sprays used. The high concentrations of sprays gave better results than low concentrated sprays. In the seven times of applications. The high concentration of endrin and gusathion gave about equal effectiveness against this pest. But seven sprays were superior to five sprays. Diazinon gave poor results for control of this pest whether in various concentrations or number of applications used. The reaults are given in Table 1.

Table 1. Effective control of cotton pests after Typhoon in 1956

| Applied times | Chomical treatments | Bolls infested | | No. of bolls per plant | Yield of seed cotton kg/ha | Index |
|---|---|---|---|---|---|---|
| | | % (AV) | Angle | | | |
| 5 | 0.04% Endrin emul. | 25.40 | 30.25 | 24.70 | 1,044.00 | 1,104.60 |
| 7 | 0.04% Endrin emul. | 18.80 | 25.57 | 26.00 | 1,380.00 | 1,460.30 |
| 5 | 0.02% Endrin emul. | 33.77 | 37.80 | 13.30 | 732.00 | 765.10 |
| 7 | 0.02% Endrin emul. | 21.72 | 27.72 | 24.40 | 1,119.00 | 1,184.13 |
| 5 | 0.04% Gusathion emul. | 43.00 | 40.95 | 11.20 | 788.00 | 844.44 |
| 7 | 0.04% Gusathion emul. | 18.20 | 25.31 | 25.10 | 1,356.00 | 1,434.90 |
| 5 | 0.02% Gusathion emul. | 42.40 | 40.58 | 10.10 | 462.00 | 488.89 |
| 7 | 0.02% Gusathion emul. | 26.40 | 30.94 | 17.90 | 794.00 | 840.21 |
| 5 | 0.04% Diazinon emul. | 64.70 | 54.82 | 5.40 | 159.00 | 169.25 |
| 7 | 0.04% Diazinon emul. | 40.30 | 39.35 | 9.50 | 248.00 | 262.43 |
| 5 | 0.02% Diazinon emul. | 62.90 | 52.73 | 4.00 | 135.00 | 142.26 |
| 7 | 0.02% Diazinon emul. | 59.40 | 50.59 | 5.00 | 159.00 | 168.25 |
| | Check (Untreated) | 69.15 | 57.56 | 2.32 | 94.50 | 100.00 |
| | L. S. D. at level 5% | | 1.74 | 3.67 | 73.26 | |
| | L. S. D. at level 1% | | 2.34 | 4.92 | 98.28 | |

## DISCUSSION

The number of bolls on each plant receiving treatments was significantly higher than the check. It was 4.10 to 26.00 bolls per plant as compared with 2.32 in the check. There was also a significant difference between various treatments and number of sprays used. High concentrations with diazinon when applied seven times gave a difference over the check, but low concentrations gave no significant difference over the check. Percentage of infested bolls by spiny bollworm was lower than the check. It was 18.20% to 64.70% of infested bolls as compared 69.15% in the check. There was a significant difference between various treatments and number of sprays used. In various treatments of diazinon, the percentage of infested bolls was significantly greater than other chemical treatments. The treated plots gave significantly higher yield than the check. It was 135.00 to 1380.00 kgs of seed cotton per hectare as compared with 94.50 kgs in the check, but the treated plots with diazinon gave a lower yield than those treated with other chemicals.

## SUMMARY

Endrin, gusathion and diazinon were tested for control of two important cotton insects, namely, leafhopper *Chlorita biguttula* Ishida and spiny bollworm *Earia fabia* Stoll infesting cotton crops after a typhoon at Tai-dou-kung, Chiayi county, in Taiwan in 1956. In all treatments. excellent results were obtained from high concentrated plots applied at intervals of 10 days. It was revealed that endrin and gusathion gave best results and also gave about equal effectiveness against this pest. The treated plots of endrin and gusathion in the yield of seed cotton were 1356 to 1380 kgs per hectare as the index of increased yield was at 143.49% to 146.03% and all plots treated with diazinon were less effective. According to this data, the control of cotton pests should be very important for reducing damage to cotton following typhoons.


# 颱風後田間藥劑防治棉蟲試驗

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## 摘　　要

於民國45年9月15日棉田遭遇强力颱風黛納小姐襲擊後，損失不貲，乃以繼續進行藥劑防治兩種主要棉蟲爲棉浮塵子 *Chlorita biguttula* Ishida 與棉金鋼鑽蟲 *Earias fabia* Stoll 試驗，並在本分所臺斗坑農場舉行，參加殺蟲劑爲安特靈 (19.5% Endrin)，克殺聖 (20% Gusathion) 與大利農 (60% Diazinon) 三種乳劑。本試驗結果，其中以安特靈與克殺聖乳劑之高濃度處理，並間隔10天施藥1次者爲最優，每公頃籽棉產量達1,356—1,380公斤，增產指數143.49%—146.03% 唯獨大利農諸處理最差。茲據本試驗各處理中產量統計分析結果，顯示颱風後加强蟲害防治，殊爲重要，仍可挽救部份損失。